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ABSTRACT

The development of automated information services in academic libraries and the growth of AUSINET (Australian Information Network) are described. The current organization of online services and their integration into the pattern of user assistance are noted, and the effects on the user/librarian relationship, on the use of primary and secondary sources, on interlibrary lending, and on the allocation of staff and financial resources are considered. Future effects are projected to be wider and more significant than those already observed. (Author)

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Impact of information systems on users of academic libraries: Australia

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Impact of information systems on users of academic libraries: Australia

ABSTRACT:

The development of automated information services in Australia, and AUSINET (Australian Information Network), is described. The current organisation of online services, and their integration into the pattern of user assistance, is noted, and the effects on the user/librarian relationship, on the use of primary and secondary sources, on interlibrary lending, and on the allocation of staff and financial resources, are described. It is noted the future effects are likely to be wider and more significant than those already observed.

The proliferation and complexity of contemporary published literature has made students and researchers alike heavily dependent on indexes and abstracts as guides to this literature. These secondary sources have, in response, expanded in number, scope and complexity. Researchers, if they are to be effective, acquire by one means or another as part of their education an appropriate level of skill in literature searching. The traditional pattern can be categorised in the following way. The information sources are printed and are consulted directly by the user, typically without assistance. The user is in very direct control of his search, which he can modify or extend at will, according to his skill and his evaluation of the results of the search. The results, again, are fairly direct and immediate.

It was inevitable that machines would eventually intervene in this process. The intervention came later in Australia than it did in North America or Europe. From the early 1970s, automated offline searches of machine-readable data bases became available through the National Library of Australia and the Commonwealth Scientific and Industrial Research Organisation. The primary use of these searches was for current awareness purposes. They were, in essence, personalised publication services, presenting a selected subset from the sources which the user probably consulted anyway. While it is perfectly simple to produce such listings by manual means, examples of this were rare in Australian academic libraries. Thus, a new service was being provided for which there was little precedent.

It was also possible, of course, for automated retrospective searches of the literature to be made. However, while the regularity of current awareness listings meant that the specification of the topic could be regularly monitored for accuracy, and amended if necessary, retrospective searches were done once and for all, whether accurately defined or not, and so tended to be less favoured.

The impact of both these kinds of services was small, however, for various reasons. Firstly, the search procedure was strange, quite unlike that normally employed by users. Secondly, the searching was done remotely, and hence did not involve the user directly, nor excite his interest. Thirdly,

most users did not see these services as being an extension of traditional library services and, in essence, they were not. The searches occurred outside of the library, and in many cases the library was not even involved as an intermediary. Fourthly, as charges for the searches were introduced or increased, users began to doubt the necessity for and cost savings of the system. The cancellation rate was, in many cases, very high, and users continued to scan current journals and printed indexing and abstracting services as they had always done. Offline searching did not seem to provide a completely acceptable alternative to traditional methods.

The development which was seen as likely to be more effective, and thus to have a greater impact, was online searching. The earliest Australian-managed online information service began in 1976 when the National Library, in association with the Commonwealth Department of Health, offered MEDLINE to selected libraries. This was, simply, the standard system transplanted to Australia, and involved very little new development. It was a natural progression from the MEDLARS offline service which had been offered previously, and which was well established and accepted by medical workers, many of whom were associated with academic libraries.

Between March and May of the same year, the National Library's Education Information Service and IBM Australia conducted a joint feasibility study to examine the applicability of online information retrieval techniques to the subject areas of education. The online ERIC project involved a telecommunications network, with videoterminals and printers, linking libraries in three states to an IBM computer in Canberra, the national capital. Through the IBM STAIRS software searching package, citations from two and a half years of the ERIC data base were available for online searching for three hours per day on three days each week. The Project involved users from universities and colleges, government departments, libraries, industry and commerce.

The results of the Project were very positive. There were three major conclusions. Firstly, the experiment demonstrated that an online system represented a major improvement in information retrieval compared to the earlier offline systems. Secondly, STAIRS was found to be an effective software package. Thirdly, there was the qualification that the ERIC data base alone was not sufficient to meet the information needs of Australian educationalists. There was a need for greater access to the Australian literature as well.

The staff at one university at least, were so impressed with the results of the Project that they invited a computer service bureau to tender for the establishment of a permanent online facility for ERIC at the library. Subsequent discussions between the university library, the service bureau and the National Library revealed that the facilities existed for a much more ambitious plan, a general online library-based resource sharing information network, based on IBM equipment and software.

The National Library proposed that a number of libraries join with it, as equal partners, in a joint venture to provide online information retrieval services from a selection of overseas and local information sources to library users throughout the country. In the latter part of 1977 the joint venture became operational as AUSINET, the Australian Information Network. AUSINET currently offers information from 13 different data bases, including 4 of Australian origin, and has 20 user organisations.

AUSINET is obviously a small operation, almost trivial in scale by comparison with the large overseas services such as DIALOG. As might be expected, many academic libraries make use of these overseas services as well, to draw on

the wider range of data bases which are provided, and the longer time span of the data bases which are offered. However, internal and international telecommunication charges are high, and it is unlikely that any overseas service will make a major impact on the Australian market until these charges are reduced. This is the aim of the Overseas Telecommunication Commission (OTC), which is to introduce a new international data transmission service, MIDAS, through which Australian subscribers may gain direct access at economical rates, initially to the TYMNET Data Base and Remote Computing Services Network in the U.S.A., and later to other remote computing systems in North America and Europe. However, overseas sources are likely to have, for a long time, one major limitation - an adequate coverage of the Australian literature, a weakness in the ERIC data base as has already been noted above. Hence, the continuing need for an Australian network, a role at present filled by AUSINET.

From this review of the overall situation, it will be apparent that online services are relatively new to Australia, have not made a major penetration of the potential market, and are only beginning to affect information users and their information habits. Online services are generally only available in academic or research libraries, and their clientele are those people who already are the heavy users of information services. The comments below, then, must be seen as a preliminary report on the impact of these new services. There have been effects, though not the same or to the same extent in each library, and the description which follows is an amalgamation of the experiences of many libraries. The variations in the patterns are in themselves a matter deserving further investigation, but this aspect is not pursued here. Instead, a broad perspective is taken.

The nature of online searching is such that it replicates the kind of approach with which users are familiar, and adds to it powerful facilities for the complex manipulation of data. It is, hence, immediately understandable and attractive to potential users. The difference is that few users are likely to make enough use of the facility to become sufficiently proficient at the mechanical and intellectual aspects to be able to do the searching themselves, as they would by traditional methods. Thus, there is need for an intermediary, who might be merely an operator, but in practice in Australia is usually an experienced reference librarian.

Reference librarians in Australian academic libraries have always undertaken bibliographical searches for researchers on a limited basis, but the kind of close and extended involvement with researchers which is common in special libraries has not been typical. The assumed role of reference librarians has been the reverse - to educate users to a point where they can become independent of the reference librarians, and then only to assist in interpreting bibliographical or other reference services and to assist in procuring wanted items not held by the library.

The role of the reference librarian in online searching is quite different. The intermediary must spend an extended time on each search, formulating the requirements in advance, performing the search, and then evaluating it afterwards. Although the end user retains a primary control of all of these stages, the intermediary is always present to advise, assist and to make use of the full potentialities of the system. This is a new situation for both, and it seems likely that a new kind of user/librarian relationship will develop from it. The results will not be satisfactory unless both sides come to trust each other's knowledge, skills and competence.

If the librarian is to spend more time with users performing extended searches, the commitment of time may have to change away from the routines of reference

and enquiry desks, and the supervision of interlibrary loans, to more personal services. This would be a desirable change. While mass reference assistance and instruction is essential, reference librarians have a responsibility to assist all users, in the way most appropriate to each. Assistance to teaching and research staff has often been an area which has been given less prominence, and online searching provides the ideal opportunity for such services to be developed. There is already evidence in certain academic libraries of this change of emphasis.

As has been implied above, the searching pattern which has developed in Australia is for searches to be done by the user and the intermediary reference librarian, working together. This accords with the practice in most countries. What is significant in most Australian libraries is that the searching load is spread over all or most reference staff, according to the special interests of each. This is in preference to the other primary pattern, whereby one or more 'information specialists' have the specific role of performing the searching. There are many possible reasons for this preference, but the one which is paramount is that online searching is seen as a normal part of reference activities, rather than as a unique or different activity. Two implications can be drawn from this.

Firstly, online searching is developing as an adjunct to, not a replacement for, traditional services. Hence, its impact is likely to be by extending rather than revolutionising information gathering habits. Australian academic reference librarians have tended to be generalists rather than specialists not in the sense of necessarily dealing with all subject areas, but in the sense of dealing with all aspects of reader assistance, including general informational enquiries, reader education, catalogue assistance, bibliographical advice and so on. It was probably inevitable, in this context, that online retrieval would be included. From the point of view of the user, online searching will be offered as part of a total package of services, and used when it is most appropriate to the enquiry.

The second point is related to this. Reference librarians, both current and in training, now have a new skill which has to be acquired if they are to be effective. Library schools, which like machines and novelty, are quickly introducing this into their education programmes. How useful this training will be is yet to be proved. Mastering a machine, the searching routines and the characteristics of a data base are the easy parts. What is difficult is learning the psychological complexities of the role of intermediary, which has a loose equivalent in the "reference interview" situation. However, the intermediary role has pressures, complexities and subtleties which its equivalent lacks, and careful research and training in this aspect is essential if the initial impact of online services, in part based on novelty, is to be sustained.

The discussion so far has been concerned with the place of online searches within the context of the provision of information services. It is obvious that the nature of this provision is also changing, in at least two ways. One has already been referred to, the other not.

Printed bibliographical services have become increasingly complex. They have, in effect, stretched to the limit the kind of retrieval which may be made by manual methods. Automated information retrieval permits the almost indefinite expansion of the elements through which the literature may be approached - by physical characteristics, by descriptive headings, by identifying names and even by the text itself. Further, these elements may be combined, refined and limited in complex ways which are not possible in

print. While this facility was available in offline searching, the strategy was unsatisfactory. It is with online searching that the capabilities become significant, because they depend on an interactive environment, and users have been quick to realise this. Many of the people who lost interest in batch searching have returned, bringing their colleagues with them, and they are performing different kinds of searches which they had need for before, but could not do.

Bibliographical services, as well as becoming more complex, have also become broader in scope, reflecting the general weakening of the barriers between disciplines. There is, now, an alternative solution to the problem of inter-disciplinary studies. One thing which is superbly easy to do in online searching is to move from one data base to another. The effect is that users are now making use of a wider range of data bases than they would if left to their own devices. A biologist, for example, will perhaps find than an engineering data base contains material relevant to his interests. Not only is this an extension of the use of bibliographical sources, but it directs users to journals and other publications which were not previously scanned or considered. This, in turn, will affect the patterns of interlibrary loans and library purchasing.

Document procurement is one of the most serious issues raised by automated retrieval services. Most Australian academic libraries have noted that the introduction of current awareness or retrospective searches, whether online or not, has increased the pressures on interlibrary loan services. In Australia, interlibrary lending is decentralised, diffuse, and has a very informal structure. There are no central lending libraries and no particular libraries which can, or can be expected to, bear the majority of the traffic. Naturally, the older and the better libraries, most of them academic libraries, provide a disproportionate volume of the items lent, but in general libraries borrow from each other in what appears from the outside to be a random fashion.

In recent years, as part of its promotion of information services, the National Library of Australia has provided a document back-up service, especially in the area of science and technology. It does not have, however, either the funds or the resources to become a library of first resort for all or even a majority of interlibrary requests. What it has done is to become a document source for current materials, in certain fields, particularly to libraries with less adequate resources. What is not clear is whether either the National Library or the informal interlibrary loan network can appropriately respond to a major increase in the interlibrary loan traffic.

The informal network is supported by a range of union lists - for scientific serials, social sciences and humanities serials, and for monographs, as well as some regional and subject-based listings. The union lists are neither as current nor as complete as might be wished, and pressure for them to be so has increased. Automation, in several forms, is the solution which is being followed. However, locating a wanted item is not the same as obtaining it. It appears that the delay in obtaining interlibrary loans is increasing, to the increasing frustration of users, and any increase in demand will exacerbate this problem.

A special problem with current awareness services which, while no means unique to Australia, might be mentioned here. This is the fact that details on publications arrive in Australia considerably before the publications themselves. Hence, although an academic library may subscribe to a particular journal in which a relevant item has appeared, the appropriate issue may be still on its way across the waters. The National Library has a policy of

obtaining key journals by airmail. Users, however, usually prefer the item to be on hand rather than available from the nation's capital, and pressure for more airmail subscriptions in academic libraries is noticeable. The cost of these requests is prohibitive, and is an unwelcome invitation to divert limited resources from materials or services to freight.

Online services are having cost effects in more direct ways as well. Online services are expensive. This is not to say that they are not cost-effective, but part of the effectiveness is in a saving of user time which has never been part of any library's budgetary system. At a time when many libraries are reducing services, trimming periodical subscriptions and cutting book votes, new expenses have to be considered carefully and the sources of savings to cover them adequately planned.

Online services are labour intensive. This is a virtue in the respects described above, but there are no compensatory staff savings elsewhere in the system. Online searches are popular in a way that the offline searches never were and there are pressures for staff increases. It is possible that economies in other areas of library operation, often caused by other kinds of automation, will enable staff to be transferred across to more direct public services. There has been very little evidence of this much mooted development, and it can be regarded as an unlikely solution. Instead, as suggested above, it seems more likely that the emphasis on some of the more traditional aspects of the reference librarians' duties will be reduced.

Again, there are unlikely to be savings in the purchase of bibliographical tools in printed form. Online searches are not suitable for all needs, nor for all users. The pressure on the use of certain printed sources may be lessened, but this in itself is not a saving, unless one assumes that it removes the need to purchase additional sets or to replace worn sets. The result, in fact, is likely to be in the opposite direction, in pressure on the library to purchase journals and bibliographies not already held.

Some academic libraries have decided, if institutional policy allows, to transfer the more direct costs of online services (other than staffing) over to the users. This has an inherent logic in that the users, whose efforts are being spared, are asked to bear some of the costs generated in the process. This is not always possible, and it is not always thought desirable. Even though academic libraries are not affected by the public library philosophy of providing "free" service, most do not want to become involved with the book-keeping of information services. Most commonly, the libraries themselves bear most of the costs. As within library budgets the flexible portion is inevitably the book vote, it is ironic that a development which increases the access to information may in itself lead to a decrease in the information which is directly available.

It is very early days in the history of automated information services in Australian academic libraries. What has been attempted above is to describe some of the more immediate effects which have been noted, and to draw attention to hints of other possible changes. The accuracy of these observations will have to be tested at a later date.

There are several factors which may affect the outcome. The first is the opening up of the market which will follow the introduction of the Overseas Telecommunication Commission's MIDAS facility. Many more data bases, from competing suppliers, will become readily available, and at a reasonable cost. We have seen, so far, only the fringes of the wealth of information

which is available. Whether the locally managed network, AUSINET, can survive in this competitive environment is a matter for conjecture. It will certainly not do so unless it can develop a dynamic management structure. Online information services need an entrepreneur, which the equal partnership cooperative basis of AUSINET has not provided. If it does not survive, its fundamental Australian component may be lost, at least temporarily, to the detriment of Australian scholarship.

The second factor is user demand for online information services. So far, the demand has been artificially stimulated. Experience in North America and Europe suggests that the demand will become self increasing and unlimited. This demand, when it comes, will affect what libraries provide, how they provide it, and the place of these techniques in the pattern of library services.

The primary role of any library, academic or otherwise, is to bring together users and information, hopefully the right user and the right information. Anything which improves this union is to be welcomed. Automated information services, and in particular online services, have the potential to do this if used effectively. They make claims on limited financial resources and staff time, but in compensation they extend the range of bibliographical facilities which are available to the user, and are capable of manipulation in complex ways which are appropriate to the complexity of modern research. It is in all of these respects that their ultimate impact will be felt.